APPROVAL PAGE

This dissertation of NZALI KANCHEYA has been approved as fulfilling the requirements or partial fulfillment of the requirements for the award of Master of Medicine in INTERNAL MEDICINE by the University of Zambia.

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CROSS SECTIONAL SURVEY OF HIV PREVALENCE AMONGST MEDICAL ADMISSIONS TO THE UNIVERSITY TEACHING HOSPITAL

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE MASTERS OF MEDICINE DEGREE (INTERNAL MEDICINE) OF THE UNIVERSITY OF ZAMBIA.

UNIVERSITY OF ZAMBIA SCHOOL OF MEDICINE

I hereby declare that the work presented in this dissertation has not been presented either wholly or in part for any other degree and is not currently submitted for any degree.

Signed: 
(Candidate)

Signed: 
(Supervisor)

Signed: 
(Co-supervisor)

DEDICATION

To my family which has always given me support and inspiration through all my endeavors, academic and otherwise.

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CONTENTS

List of Figures and Tables

List of Abbreviations

AIDS Acquired Immunodeficiency Syndrome
CCF Congestive Cardiac Failure
CUE College/University Education
HIV Human Immunodeficiency Virus
KS Kaposi's Sarcoma
PE Primary Education
PTB Pulmonary Tuberculosis
RC Refused Counseling
RPTC Received Post-test Counseling
RRVTTR Received RVT (HIV) Test Result
RT Refused Testing
SE Secondary Education
STD Sexually Transmitted Disease
TB Tuberculosis
UTH University Teaching Hospital
VCT Voluntary Counseling and Testing

Abstract

The study was conducted in the University Teaching Hospital Lusaka, Zambia from May 2003 to July 2003. It was conducted in the medical admission ward (Phase V) of the hospital. In this cross sectional survey, over 100 patients were recruited by study staff and interviewed. Consent was obtained from patients and then demographic details were obtained from the patient records. Depending on their response patient, were then referred for counseling and testing for HIV.

Methods

The age, sex, presenting symptoms and clinical diagnosis were obtained from patient records. The patients were then questioned on language spoken, literacy and educational levels were assessed.

Results

The HIV seroprevalence level in the medical admission ward of UTH was determined to be 62.7%. This is higher than the previously seen levels from a study conducted in 1985 by Melbye. Sex was not found to be significant in relation to HIV seroprevalence level and neither was age and the highest seroprevalence level was in the 30 to 34 year old age group. This is contrast to the previous study by Melbye, which found a higher seroprevalence in men as compared to women. VCT is well received by the patients as seen by the numbers of patients accepting VCT, which was all apart from one patient who accepted counseling but not testing. Many patients did not receive post-test counseling or their HIV test results, 46 as compared to 56.

Conclusions

The HIV seroprevalence level in the medical admission ward of UTH determined to be 62.7% is higher than the previously seen levels from a study conducted in 1985 by Melbye. VCT is well received by patients however there needs to be an improvement in post-test counseling to enable more patients to receive their HIV test results.

CHAPTER ONE

INTRODUCTION

1.1 Background Information and Literature Review

The Situation in the Industrialized World

Forty two million people world-wide are currently infected with HIV (UNAIDS 2002). In most industrialized countries, HIV testing is becoming routine for women attending antenatal clinics (IOM report 1999) and for many people attending STD clinics. Also testing and counseling are frequently offered on all the hospital wards. HIV testing is always done for hospitalized patients with suspected HIV related disease unless the patient explicitly refuses such testing. In the United States, it has been shown that in a single urban hospital, offering routine inpatient HIV counseling and testing can be successful as a screening program by identifying a substantial number of patients with undiagnosed HIV (Walensky RP 2002). Other data on HIV is obtained by cross sectional anonymous sero-surveys among people attending STD clinics in the United States (Weinstock H 2002)

The Situation in The Rest of Africa

Of the estimated global figure of 42 million HIV infected people, two thirds are in Sub-Sharan Africa. Death rates doubled or tripled between the 1980's and the mid 1990's in Uganda, Zambia and Zimbabwe (Timaeus 1998). In Zimbabwe, 58% of patients hospitalized in medical wards were found to be HIV positive with strong associations with other infectious disease. In a study by Palmer, Mason et al the clinical estimate of patients' HIV sero-status was often inaccurate (Palmer, Mason et al. 2000). The study concluded that universal testing of all hospitalized patients would improve diagnosis of infectious disease, clarify patient prognosis, allow for individual counseling with regard to HIV prevention, and focus national health efforts (Palmer, Mason et al. 2000). Another hospital-based study in Malawi looked at the prevalence of bloodstream infections and noted that 74% of such patients were HIV-1 infected (Archibald, McDonald et al. 2000). A cross sectional study in Tanzania among medical admissions aged 55 years or over in 2001 found an overall HIV prevalence of 15.0% (Mtei L 2001). Another hospital based survey in Tanzania, found that in a high prevalence area, testing for HIV infection on the basis of clinical suspicion of AIDS alone is not sufficient to provide rational care of HIV infected patients (Kwesigabo, Killewo et al. 1999). A cross sectional survey in 2000 at Kenyatta Hospital in Nairobi, Kenya found an HIV prevalence of 40%, compared to a previous prevalence of 39% in 1992; the sero-prevalence was said to be stabilizing (Arthur, Nduba et al. 2001). In Cote d'Ivoire a cross sectional study found a prevalence of 79% HIV positivity among

in-patients (Grant A 1997). Studies done on voluntary testing and counseling in other parts of Africa have suggested that combining HIV VCT, HIV education and STD services may be most effective in reaching those at risk (Balmer D 1999).

HIV/AIDS situation in Zambia

From the time that the first case of HIV infection was noted in 1985, the epidemic has become a serious debilitating problem in Zambia. In 1998 the estimated HIV prevalence rate for the entire country was 19.7% (CBOH 1998). Population based surveys and sentinel site surveys among pregnant women have put the estimate in urban areas at more than 28% prevalence in adults between the ages of 15-49 years and 13.6% in the rural areas in the same age group (CBOH 1998). The overall rate estimated at 21.5 % for adults between the ages of 15 and 49 years of age (UNAIDS 2002) is exceedingly high and shows that Zambia is undergoing one of the worst HIV/AIDS epidemics in the entire world (CBOH 1998). In the major urban areas, the sero-prevalence rates among antenatal women increased from 5% in 1985 to 27% in 1992 and remained stable through 1998 (UNAIDS 2002). These rates have declined in the age group less than 20 years of age but have remained relatively constant in the older age groups (UNAIDS 2002). Although overall HIV prevalence rates have remained the same between 1992 and 1998, HIV prevalence among 15-19 year old antenatal attendees declined. In 1993, 27 % of antenatal clinic women under 20 years of age tested were HIV positive; by 1998, that rate had declined to 17 % (UNAIDS 2002). This could be due to the decline in premarital sex and/or the

number of sexual partners among youth in urban areas (Bloom, Banda et al. 2000). In 15 to 19 year olds the HIV prevalence dropped from 28% in 1993 to 23% in 1994 and then to 15% in 1998, which has been very encouraging (CBOH 1998). This could possibly be due to the behavior campaigns encouraging the practice of safer sex practices or abstinence among the youths. These community based educational programs are said to have had much impact in the early 1990's but stagnated in later years (Bloom, Banda et al. 2000). However, excessive optimism is not justified by the fact that the prevalence among 15 to 49 year olds has stabilized at over 19% for much of the1990s (CBOH 1998). The high prevalence rate in urban areas is important, as Zambia is one of the most urbanized countries in sub-Saharan Africa. About 60% of the population lives in urban areas (CBOH 1998). Over 94% of HIV infections in Zambia are HIV-1, subtype C.

Poverty and Epidemiology of HIV/AIDS in Zambia

Poverty is an important factor in the spread of HIV. Over the past 20 years Zambia has faced increasing economic difficulties. The World Bank funded assessment of poverty reported that an estimated two-thirds of the population lived below the poverty line and 69% lived in households in which basic needs were not being met (CBOH 1998). This has an impact on the health of the population and ability to access health facilities. Poverty causes people to have a poor nutritional status, which makes them more susceptible to disease. Poor people are unable to pay medical user fees or even pay for transport to medical facilities. This has an important role in late diagnosis of HIV infection.

The majority of AIDS cases are acquired through heterosexual transmission (UNAIDS 2002). The other major method of transmission is vertical from mother to child. Homosexual transmission is not thought to play a major role in transmission in Zambia. The role of transmission through blood and blood products has not been evaluated.

The Situation in Zambian hospitals and clinics

Countrywide there is 34% access of the population to health facilities in the urban areas, 14 % in the rural areas and 52 % access overall (UNAIDS 2002). In the capital city the many patients are seen at the main referral hospital, University Teaching Hospital, a 1200 bed facility. Cases are seen in all the different disciplines of the hospital, including: Medicine, Surgery, Obstetrics and Gynecology, Pediatrics and the surgical and medical sub-specialties. The hospital has a severe shortage of staff. Admissions to the department of medicine can range from 20 to 70 patients in a day. The high prevalence of HIV related illnesses in Zambia has seriously overburdened the health care system at all levels (CBOH 1998). Little is done for the patients as there are frequent drug shortages and even poor patients have to buy their own medications. Thus therapeutic non-adherence is the rule. Antiretrovirals are only administered by doctors to the very few patients who buy their own medication or are on the government antiretroviral scheme. Usually the staff on duty in the in-patient and admission wards are overwhelmed with work and are unable to give much care to the patients apart from basic medical care, namely a bed, basic analgesics and antibiotics, if the patients can purchase the drugs. Detailed medical histories

are rarely taken and patients are rarely counseled. Patients are often discharged without knowing that they were treated for an HIV related illness.

Voluntary Counseling and Testing Services at UTH

There is a functional VCT unit at the hospital staffed by trained counselors. However, doctors have rarely referred patients for HIV testing or for counseling. Most patients are treated as AIDS patients on the basis of clinical diagnosis alone and opportunistic infections related to HIV are treated when possible and affordable.

The World Health Organization has said that voluntary confidential counseling and testing will be an integral component of access to comprehensive, essential and quality health care (Coovadia 2000). As VCT and STD services are available at the University Teaching Hospital, the only thing missing is the actual wide spread HIV testing and STD screening of patients. Some issues of concern have been the lack of basic clinical and social services required for the care and support of persons with AIDS after their diagnosis, the absence of clear policy for obtaining informed consent prior to testing (Sangiwa G 2000). The Zambia counseling Services has a clear policy but there may be lack of information to service providers about the policy. In this study, most of the key requirements are in place including a service for home-based care, and, hopefully clinical services that will improve in the near future with the wider availability of antiretroviral drugs. VCT counselors in the hospital have good policies in place about how to go about obtaining informed consent. This study will be of use in refining guidelines in setting up an HIV VCT program in the

antenatal clinic at the University Teaching Hospital namely in the streamlining of timing of patient approach and points at which clients are lost. A study done in Zambia on the implementation of same day VCT in antenatal clinics showed it to be an effective strategy (Bakari, Allen S, et al. 2000), (Bakari, 2000). The most appropriate format and venue for VCT remains a topic of debate among clinicians and public health professionals.

Data on HIV seroprevalence in Zambia

Data on the prevalence of HIV in Zambia are mainly obtained from surveys of pregnant women attending antenatal clinics in the country. Other data are obtained from blood bank (Foster and Buve 1995) and censuses (UNAIDS 2000). The first documented hospital based survey was done in 1985 at the University Teaching Hospital (Melbye 1986). At this time HIV was just becoming epidemic in Zambia. The survey found the prevalence to be low in subjects aged less than 20 years or greater than 60 years of age. In men, the sero-prevalence reached its peak (32.9%) in the 30 to 35 year age group and in women it peaked at 20 to 25 years of age (24.4%). High educational level was also associated with HIV sero-positivity. Sero-positivity rates were higher in patients with an infectious problem (23.4%) than in those without (11.4%). Currently it is thought that 70% of the inpatients are HIV positive but this is an unconfirmed estimation. Repeated cross sectional surveys have been done on pregnant women in Zambia (Fylkesnes, Musonda et al. 1997) by the Tropical Disease Research Center in Ndola, Zambia and collaborators. One of the studies was a longitudinal

study looking at HIV-1 infection in pregnancy, infancy and early childhood (Sukwa T 1996). The prevalence among women attending antenatal clinic was found to be 15.5%. Another study compared population based data to sentinel surveillance and found that sentinel surveillance data in antenatal clinics might present a distorted picture of current dynamics of the HIV epidemic (Fylkesnes, Ndhlovu et al. 1998). Some other cross sectional surveys have been done in outpatient clinics (Duncan, Elliott et al. 1995) and (Elliott, Luo et al. 1990) at the University Teaching Hospital. In a cross sectional, population based survey in Ndola, Zambia and Kisumu, Kenya, subjects aged 15 to 49 years were randomly selected from the general population. The prevalence rates of HIV in men in Ndola were 23.2% and 31.9% in women (Buve, Carael et al. 2001). Studies on people attending voluntary counseling and testing centers also provide data on sero-prevalence but this may or may not represent the general population.

1.2 Justification for the Study

A survey is needed among hospital in-patients to present actual sero-prevalence in the hospital, rather than relying on sentinel data or population surveys. One can expect much higher seroprevalence rates among in-patients whose hospitalization may well be due to HIV related causes. Another important aspect of the importance of this survey is that it will serve to provide pilot data for studies on antiretroviral therapy in the University Teaching Hospital. The persons testing HIV positive in this survey may also be offered participation in other future studies such as for prophylaxis against opportunistic infections in HIV positive patients.

The importance of this study to clinical work is substantial. If patients are found to be HIV positive they can be managed better with nutritional support and opportunistic infection prophylaxis. They may also be offered the opportunity to commence antiretroviral treatment, which are available on a limited basis under the hospital scheme. This is also an advantage for those who can afford to buy their own antiretrovirals. Also through the process of VCT, patients will be educated about their risks and how to avoid infecting others. Baseline sero-positivity levels for the hospital are also of importance for future studies that

require such data, such as prophylaxis studies and antiretroviral treatment studies.

1.3 Objectives

The overall goal of this study is to improve the patient and practitioner knowledge of the HIV status seen amongst patients admitted to the medical wards of the University Teaching Hospital (UTH) in Lusaka, Zambia. At UTH, the main reference hospital in Zambia, few patients are actually ever tested for HIV and diagnosis is usually on a clinical basis. This study will characterize the prevalence of HIV seropositivity in the medical admission ward of the University Teaching Hospital, Lusaka, Zambia. This will further the management of these patients' care and encourage the use of voluntary counseling and testing (VCT) services. The patients may also serve as a cohort for further intervention trials. The specific aims of this study are:

1. To determine the HIV sero-prevalence level in the medical admission ward of the University Teaching Hospital..
2. To assess the willingness of patients to access VCT services.

Hypothesis for the Study

The hypothesis for the first aim being tested is that the hospital sero prevalence level is higher than the previously found rates of 32.9% in men and 24.4% in women in 1985. The hypothesis for the second specific aim is that VCT services are being underutilized as the patients are not being offered or are not taking up the chance to be tested for HIV. By showing that the sero-prevalence is high; the need for utilization of VCT services will be realized

1.4 Ethical Consideration

1 The survey population consisted of persons admitted to the medical admission ward of the University Teaching Hospital. There was no exclusion on the basis of gender or ethnicity. As the study was done on the medical wards of the University Teaching Hospital the subjects were limited to the adult population.

2 The material used were minimally invasive material, namely a blood sample. These were used for clinical diagnosis of HIV in the patients. Other sources of material were data extracted from patient interview and medical records.

3 Survey subjects were recruited by a member of the research team at the time of their admission to the medical admission ward in the hospital. Subjects were identified by treatment facility physicians and staff as well as the diagnostic departments of the virology department at the hospital.

4 The potential risk to the subjects was minimal. Study subjects encountered no psychological, social, legal or other risk as a result of participation. Privacy was maintained to the best level possible by interviewing subjects in a private interview room and keeping records confidential. The only physical discomfort was the temporary discomfort of the invasive diagnostic procedure being performed. The invasive procedures

were performed only to obtain a definitive diagnosis of HIV infection. The survey subjects received adequate counseling and the chance to give consent before any test or procedure was done. They also received post-test counseling if they so wished.

5 The confidentiality of each study subject was strictly maintained and protected. Patient identifiers were retained on data or samples that were obtained. However subjects were asked for permission for data to be made available to the research staff for research. Any other patient information was secured in a locked file in a locked room with very limited access in the University Teaching Hospital.

6 All clinical procedures performed on clinical patients were done by trained hospital staff and researchers on the study.

CHAPTER TWO

METHODS

2.1 Materials and Methods

In specific aim one of the proposal the hypothesis that the HIV seroprevalence is now greater than the previously estimated in-patient seroprevalence of about 32.9% in men and 24.4% in women was tested. The estimate of 70% for both men and women was used for calculating the sample size needed. We wished to determine the HIV seroprevalence amongst patients admitted to the medical wards at the University Teaching Hospital. There are six low cost medical wards in the hospital and one admission ward. A cross sectional survey of patients admitted to the admission ward was conducted over a period of two months. The survey was explained to the patients and written consent was obtained from willing participants. Patients who agreed to enter the survey were seen for confidential counseling by one of the trained hospital counselors. Of those who agree to be tested, samples of blood were obtained after explaining the procedure. The samples were tested at the virology laboratory using a rapid HIV test, which was Abbot Determine for screening and confirmed by a second rapid test Genie Two. Any results requiring further confirmation were tested by a Magnetic Elisa Bionor test. Data on patient characteristics such as age, sex, race, presenting symptoms and admitting diagnosis were also be obtained. After testing the patients were again seen by a counselor and informed of their results if they so chose. Data was collected over a period of two months and then analyzed.

In specific aim two of the study we wished to see if increased referral to the voluntary counseling and testing services at the hospital actually resulted in more use of this service by the patients. Patients approached in the survey were referred to the service and the number actually making use of the service noted. This was done in cooperation with a member of the voluntary counseling and testing team. Data collection was on-going over the two-month period and was analyzed subsequently.

2A. Specific Aim 1

To determine the prevalence of HIV infection among patients admitted to the medical wards of the University Teaching Hospital over a two-month period.

Specific Aim 2

The hypothesis being tested was that the voluntary counseling and testing services at the University Teaching Hospital were not being adequately used by the patients and medical personnel. The overall goal of this aim was to assess whether adequate referral of patients to this service would actually increase its usage.

2B. Data Collection Details

A sample size to give a power of 80% and an alpha of 0.05 was calculated. Using the estimated prevalence of 70% in hospital patients and wanting a standard error of about 10% the minimum number of patients required for the whole study to achieve significance was calculated to be 100. However about 100 patients were recruited. Staff for the project were identified prior to the onset

of the study. In addition to the principle investigator, two other doctors (residents) from different units in the department of medicine were identified to assist on the study. Two nurses who work in the admission ward and a counselor from the department of social work were also identified to assist on the study. Recruitment of patients was done every second day on the days the residents were on duty. This covered a period of 24 hours on each admission day. Every fourth patient admitted was selected. Patients selected for the study were tested for HIV using test kits supplied by the Virology laboratory at the Hospital. Selected patients admitted to the medical admission ward were approached by one of the project personnel. Patients who were too sick to be interviewed as judged by the study doctor or nurse were excluded. One of the nurses on the study explained the survey to them in a private patient interview room. One of the study doctors was then informed and consent to enter the study was obtained. A questionnaire was administered on age, sex, race, and educational level, presenting symptoms and current diagnosis. Possible difficulties were that patients of low literacy levels would not understand the English. In such cases the study was explained to them in both English, to those who understand it and Nyanja and Bemba to those who did not to make sure that the patients understand. The counselor then conducted pre-test counseling and after the blood sample was drawn the patient was referred for further counseling to obtain their HIV results. Records of the patients seen for pre-test counseling were kept. Post test counseling was done the next day. The patients who went for post-test counseling either at the VCT office or asking for counseling on their ward were noted and records kept. This

data collection was on going over the same period as the cross sectional survey. Reporting bias from the person administering the questionnaire was overcome by training the investigators prior to administering the questionnaire so that they were impartial.

2C. Data Analysis Plan

Data entry was ongoing with the survey and was entered using the Microsoft Access package. After two months of collection the data was analyzed as a cross sectional survey. Standard data analysis methods using the Epi-info statistical program was used.

Recruitment Site

The medical admission ward of the University Teaching Hospital

Method of Patient Selection

Every fourth patient admitted was selected from the admission book.

Inclusion Criteria

Any adult patient of 15 years or older admitted to the medical admission ward of either sex.

Exclusion Criteria

1. Any patient judged critically ill by the interviewer.
2. Any patient mentally retarded, mentally ill or with altered mental status
3. Any patient who was unable to understand any of the languages of the interview.
4. Any patient with alcohol intoxication.

Samples Collected

One 2 ml sample of blood per patient.

Study Sample Size

100 patients.

Data Analysis

The data was entered using the Microsoft Access 2000 program and analyzed using Epi-Info version 6.0.

CHAPTER THREE

RESULTS

3.1 HIV seroprevalence

One hundred and two samples were analysed. The frequency of HIV was 64 positive samples out of 102 a percentage of 62.7 %. 38 samples out of 102 were negative a percentage of 37.3 %. The p-value was < 0.001.

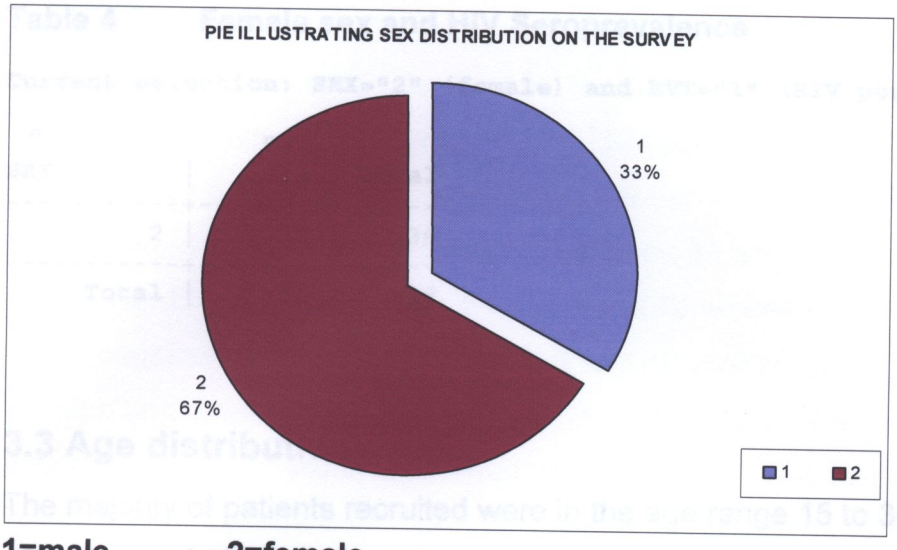
Table 1 HIV Seroprevalence

RVT	Freq	Percent	Cum.
1	64	62.7%	100.0%
0	38	37.3%	37.3%
Total	102	100.0%	

3.2 Sex and HIV seroprevalence

Forty-nine of the 102 people recruited were male and 53 were female giving percentages of 48.0 % and 52.0 % respectively. Out of the males, 21 were HIV negative and 28 were positive. Of the females, 17 were HIV negative and 36 HIV positive. The risk ratio for male sex was 1.34 with a 95 % confidence interval of 0.80 to 2.22, which is not significant. Sex, either male or female, in relation to seroprevalence was not signicficant as seen by the p values of 1.000.

Pie chart 1 Sex Distribution



1=male 2=female

Table 2 Sex Frequency Distribution

SEX	Freq	Percent	Cum.
1	49	48.0%	48.0%
2	53	52.0%	100.0%
Total	102	100.0%	

1= Male
2= Female

Table 3 Male sex and HIV Seroprevalence

Current selection: SEX="1" (male) and RVT="1"(HIV positive)

SEX	RVT 1	Total
1	28	28
Total	28	28

Table 4 Female sex and HIV Seroprevalence

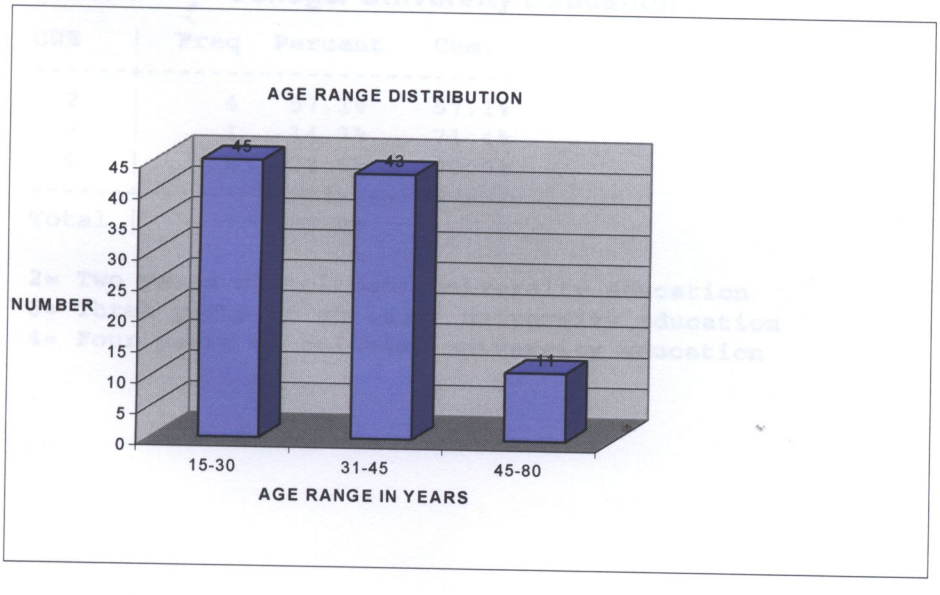
Current selection: SEX="2" (female) and RVT="1" (HIV positive)

SEX	RVT 1	Total
2	36	36
Total	36	36

3.3 Age distribution

The majority of patients recruited were in the age range 15 to 30 years of age with 45 out of 102 between 15 and 30 years of age, 43 between 31 and 45 years of age and 11 between 45 to 80 years of age. There were no patients below 15 years of age or above 80 years of age. Between the ages of 15 and 30 years 19 patients were male and 26 female. Between the ages of 31 and 45 years, 22 were male and 21 female. Above the age of 45 years, 5 were male and 6 female.

Figure 1 Age Distribution



3.4 Age and HIV Seroprevalence

The highest number of HIV positive patients was in the age group 30 to 34 years of age with 19 patients positive and 5 negative. Between the ages of 18 and 19 years 1 patient was positive and between the ages of 20 and 24 years of age 9 patients were positive and 10 negative. Between the ages of 25 to 29 years, 7 patients were positive and 8 negative. Between 35 and 39 years of age, 10 were positive and 3 negative. Between the ages of 40 and 44 years, 8 were positive and 2 negative. Between the ages of 45 and 49 years of age 1 patient was positive and 4 negative. Between the ages of 50 and 54 years of age, 1 patient was positive and 1 negative. Between the ages of 55 and 59 years of age, 2 patients were positive and 1 negative. Above the age of 60 years, 2 patients were negative.

3.5 Education and HIV Seroprevalence

A total of 100 patients had received primary education, 43 had received secondary education and 7 had received college/university education.

Table 5 College/ University Education

CUE	Freq	Percent	Cum.
2	4	57.1%	57.1%
3	1	14.3%	71.4%
4	2	28.6%	100.0%
Total	7	100.0%	

2= Two years of college/ university education
3= Three years of college/ university education
4= Four years of college/ university education

Table 6 Secondary Education

.

SE	Freq	Percent	Cum.
2	3	7.0%	7.0%
3	13	30.2%	37.2%
4	1	2.3%	39.5%
5	26	60.5%	100.0%
Total	43	100.0%	

2= Two years of secondary education
3= Three years of secondary education
4= Four years of secondary education
5= Five years of secondary education

Table 7 Primary Education

PE	Freq	Percent	Cum.
1	1	1.0%	1.0%
2	3	3.0%	4.0%
3	1	1.0%	5.0%
4	3	3.0%	8.0%
5	15	15.0%	23.0%
6	2	2.0%	25.0%
7	75	75.0%	100.0%
Total	100	100.0%	

1= One year of primary education
2= Two years of primary education
3= Three years of primary education
4= Four years of primary education
5= Five years of primary education
6= Six years of primary education
7= Seven years of primary education

3.6 Diagnosis

The majority of cases diagnosed according to file records were pulmonary tuberculosis (PTB) with 30 cases out of 102. This was followed by 12 cases of pneumonia, 9 cases of malaria, 6 cases of congestive cardiac failure (CCF), 5

cases of anaemia and chronic gastroenteritis each, 4 cases of cardiomyopathy, retroviral disease, gastroenteritis each, 3 cases of meningitis, kaposi's sarcoma (KS) each, 2 cases of dysentery and 1 case each of stroke, gastritis, chronic liver disease, drug reaction, polyarthritis, nephritic syndrome, disseminated tuberculosis (TB), peritonitis, arthritis, cardiac failure, disseminated KS, migraine, poisoning, hypertension, hypertensive heart disease and urinary tract infection. Six cases had no diagnosis. The total number of diagnosis made was 109.

Figure 2 Diagnosis

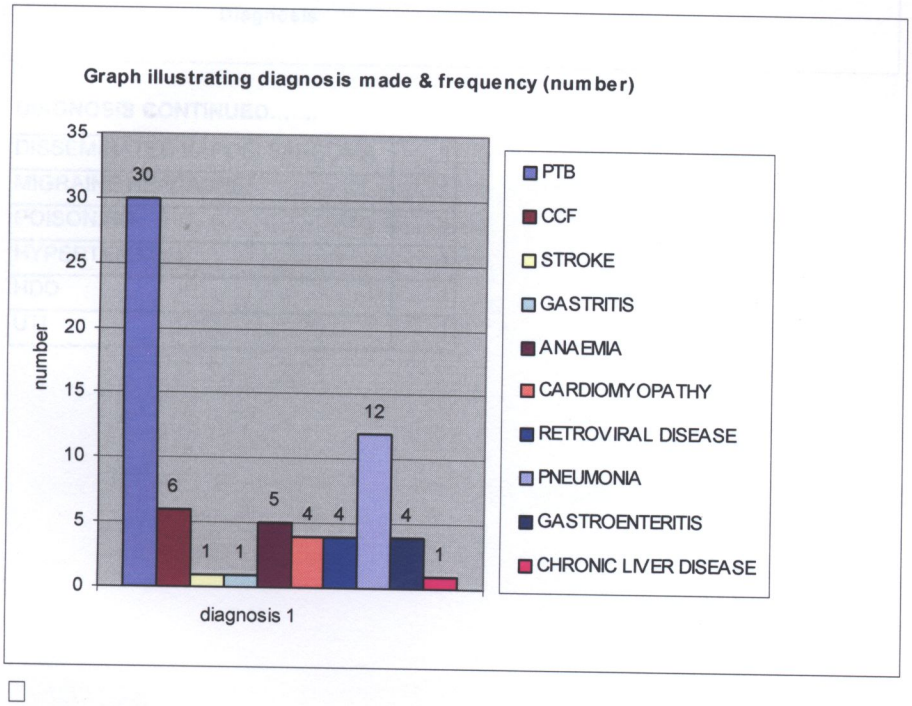
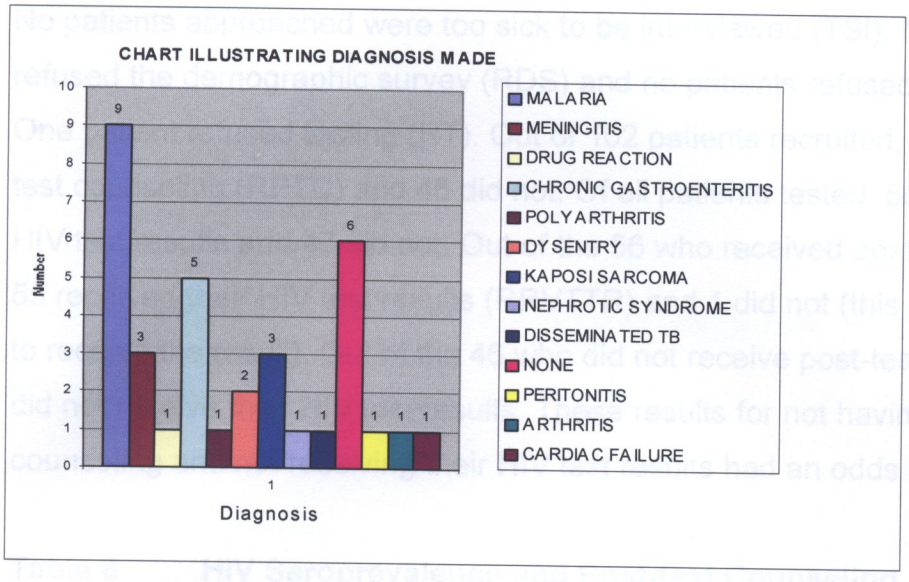


Figure 3 Diagnosis



DIAGNOSIS CONTINUED.....

DISSEMINATED KAPOSI SARCOMA	1
MIGRAINE HEADACHE	1
POISONING	1
HYPERTENSION	1
HDD	1
UTI	1

3.7 VCT Results

No patients approached were too sick to be interviewed (TSI). No patients refused the demographic survey (RDS) and no patients refused counseling (RC). One patient refused testing (RT). Out of 102 patients recruited, 56 received post-test counseling (RPTC) and 46 did not. Of all patients tested, 55 received their HIV test results and 47 did not. Out of the 56 who received post-test counseling 55 received their HIV test results (RRVTTR) and 1 did not (this patient declined to receive the result). Out of the 46 who did not receive post-test counseling, all did not receive their HIV test results. These results for not having post test counseling and not receiving their HIV test results had an odds ratio of 56.00.

Table 8 HIV Seroprevalence and Post-test Counseling

	RPTC					
RVT	**0**	**%**	**1**	**%**	**Total**	**%**
0	11	23.9%	27	48.2%	38	37.2%
1	35	76%	29	51.7%	64	62.7%
Total	46		56		102	

RPTC 0 = No 1= Yes
RVT 0=Negative 1= Positive

Table 9 Post-test Counseling and Receipt of Test Results

	RRVTTR		
RPTC	**0.0**	**1.0**	**Total**
0	46	0	46
1	1	55	56
Total	47	55	102

RRVTTR 0=No 1=Yes
RPTC 0=No 1=Yes

CHAPTER FOUR

DISCUSSION

The HIV seroprevalence in the medical admission ward at UTH was found to be 62.7%. This is lower than the estimated rate of 70%. However the sample size of the study was only 102 patients and with a higher sample size the level may be found to be higher. Also, not every patient admitted on every day of the two-month period of the study was tested as they were selected at random. However, every patient approached apart from one agreed to be tested so the result may be representative of the seroprevalence on the ward in general. The first documented hospital based survey done in 1985 at the University Teaching Hospital by Melbye (Melbye 1986) found the prevalence to be low in subjects aged less than 20 years or greater than 60 years of age. In men, the sero-prevalence reached its peak (32.9%) in the 30 to 35 year age group and in women it peaked at 20 to 25 years of age (24.4%). Population seroprevalence levels have been estimated at 21.5 % for adults between the ages of 15 and 49 years of age (UNAIDS 2002). The study found a much higher rate than the population level. The rate of 62.7% is extremely high compared to population data but this may be due to the fact that patients presenting to the hospital are coming with an underlying HIV related illness. This is reflected in the data on diagnosis and HIV positive state. The diagnoses were obtained from the patient files and were mostly on clinical basis so they may not be true results. More females than males were recruited in the study, namely 53 to 49. More females

than males were HIV positive, namely 36 to 28, however this was not significant as seen by the risk ratio of 1.34 with a confidence interval of 0.80 to 2.22. Thus, in this study sex in relation to HIV seropositivity is not significant.

The majority of patients recruited were in the age group 15 to 30 years of age (45), and the highest seroprevalence was in the 30 to 34 year age group with 19 positive and 5 negative. This is consistent with findings from other studies and surveys although the results here are not significant (all had p=1.000). This may be due to the small sample size. Although overall HIV prevalence rates have remained the same between 1992 and 1998, HIV prevalence among 15-19 year old antenatal attendees declined. In 1993, 27 % of antenatal clinic women under 20 years of age tested were HIV positive; by 1998, that rate had declined to 17 % (UNIADS 2002). These rates have declined in the age group less than 20 years of age but have remained relatively constant in the older age groups (UNAIDS 2002). Among 15 to 49 year olds this has stabilized at over 19% for much of the1990s (CBOH 1998). In this study there were no patients less than 18 years of age and in the age group 18 to 19 years only one patient was HIV positive.

Some patients had more than one diagnosis, thus the higher number of diagnosis than patients (109 compared to 102). The most common diagnosis was pulmonary TB (PTB) followed by pneumonia. PTB is a common diagnosis in the medical admission ward, however this is often on a clinical basis and not supported by radiological or sputum results. PTB is a common condition in HIV positive patients as seen in other studies. This has been seen in other studies done in Africa (Moosa MY, Clin Infect Dis 1997 Feb; 24 (2):131-4). Of the other

diagnosis, chronic gastroenteritis is also a common diagnosis in HIV positive patients. There are a relatively large number of patients with no diagnosis (6).

VCT

VCT seems to be relatively well received by patients with no patients refusing counseling and only one refusing testing. A slight majority, 56, received post-test counseling as compared to 46 who did not. This may be due to the fact that patients may have been discharged before they could receive their results, rather than not being followed by the counselors. Of the patients who did not receive post-test counseling, none received their HIV test results which is explained by the fact that the test results have to be picked up by the counselors and the patients were most likely discharged before they could see the counselors for post-test counseling. It would seem that patients once discharged are unlikely to come from home to collect their results. Only one patient who received post-test counseling refused to collect the HIV result. This is a good reflection on the effectiveness on the counseling services on patients who are counseled and are still in hospital and able to collect the results from the counselors. An improvement would have to be made in the ability of more patients to receive post-test counseling in order to receive their HIV results. Studies done in Zambia on the implementation of same day VCT in antenatal clinics have shown it to be an effective strategy (Bakari, Allen S, et al. 2000), (Bakari, 2000). Same day VCT could also be implemented in the medical wards. Encouraging doctors to keep patients in until they obtain their results and increasing the number of counselors so that they are able to return to patients for

post-test counseling more quickly would also help to achieve this. This could be achieved by sending more nursing staff and doctors for counseling courses so that they would not have to wait for the counselors from the VCT department.

CHAPTER FIVE

CONCLUDING REMARKS AND RECOMMENDATIONS

The HIV seroprevalence level in the medical admission ward of UTH was determined to be 62.7%. This is higher than the previously seen levels from a study conducted in 1985 by Melbye. Sex was not found to be significant in relation to HIV seroprevalence level and neither was age and the highest seroprevalence level was in the 30 to 34 year old age group. This is contrast to the previous study by Melbye, which found a higher seroprevalence in men as compared to women.

VCT is well received by the patients, however there needs to be an improvement in post-test counseling to enable more patients to receive their HIV test results. This could be achieved by:

1. Encouraging doctors to keep patients in until they obtain their result
2. Increasing the number of counselors so that they are able to return to patients for post-test counseling more quickly could improve this. This could be achieved by sending more nursing staff and doctors for counseling courses so that they would not have to wait for the counselors from the VCT department.
3. Introducing A method of same day VCT and receipt of results.

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APPENDIX 1

CONSENT FORM

PROJECT TITLE **CROSS SECTIONAL SURVEY OF SEROPREVALENCE OF HIV ON MEDICAL WARDS IN THE UNIVERSITY TEACHING HOSPITAL, LUSAKA, ZAMBIA**

INVESTIGATOR **Dr. Nzali Kancheya**

SPONSOR **NIH/FOGARTY**

PURPOSE

To collect blood samples from admissions to the medical ward to determine the seroprevalence of HIV on these wards. This information will be used in the future management and in preparation for future studies.
The second aim is to see how effective the referral from the medical admission wards to the voluntary testing and counseling services is.

PROCEDURES

The survey will collect demographic data and samples from male and female patients. Approval of the study has been obtained from the University of Zambia Research Ethics committee and the University of Alabama at Birmingham Institutional Review Boards. The study will involve 100 men and women from admissions to the medical admission ward at the University Teaching Hospital. If you are willing to take part in the survey you will sign an informed consent and will meet with a research assistant to complete the questionnaire. You will answer the questionnaire yourself in a private setting insure confidentiality. The research assistant will review your response for

completeness. No personal identifiers will appear on the survey. You will then be referred for voluntary testing and counseling. If you agree to be tested, a research assistant will draw a blood sample. The samples will be tested in the hospital virology laboratory and all data and results will be stored in locked file cabinets in the study office. By asking you to take part in this study we are not implying that we know or suspect your HIV status.

RISKS OF PARTICIPATION

In every study in which HIV status is divulged there is risk of loss of confidentiality (breach of confidentiality). All information you give us will be kept confidential. The study staff has received extensive training in confidentiality procedures. You will be given a study ID number, and your name will not be recorded with your survey responses. Only the principal investigator and study personnel whom she designates will have access to personal identifiers (names and contact information) of respondents participating in this study. Information of respondents will be kept in locked files in the study office, and only the Principal investigator or study staff he designates will have access to these files. For some respondents, the process of counseling and testing may be painful or stressful. For respondents experiencing stress because of participating in the study, nurses and counselors will be available to help you.

BENEFITS

Participation in this study does not guarantee that you will be chosen to participate in future studies or will receive any direct benefit from participating in this study. The materials and samples collected will be used to develop data that will be used in the management of patients and in future studies that will benefit the Zambian community.

PAYMENT TO PARTICIPANT

You will receive no money for answering these questions.

CONFIDENTIALITY

All information obtained in this study will remain confidential to the extent permitted by law. No names will be attached to any data records; the names of patients will not be included in any scientific publications or presentations. Study results will be reported in a way that makes it impossible to identify individual patients. This consent form will be filed with your other survey information but will remain locked in a secure location. The UAB Institutional Review Board for Human Use, the University of Zambia Research Ethics Committee and the Sponsor, the National Institutes of Health (NIH) may review the research records for auditing purposes.

COST OF PARTICIPATING

There are no costs to you for taking part in the survey. The study-related procedures and materials will be provided at no charge to you.

PAYMENT FOR RESEARCH-RELATED INJURIES

Neither UAB, the University of Zambia or the Sponsor, the National Institutes of Health (NIH), have made provisions for monetary compensation in the event of injury resulting from the study and in the event of such injury, treatment is provided, but is not provided free of charge.

QUESTIONS

If you have questions about this project or a research-related injury, you may call the Principal Investigator, Dr. Nzali Kancheya, at 097 779700 or Professor Karashani, Chair of the Research Ethics committee at 096 751291.

LEGAL RIGHTS

You are not giving up any of your legal rights by signing this consent form.

SIGNATURES

You will receive a copy of this consent form. Your signature indicates that you are satisfied with how the project has been explained and that you agree to take part in it.

Signature of participant Date
Or legally authorized representative

Signature of person obtaining consent Date
(Investigator or her designee)

Signature of witness Date

APPENDIX 2

Study number:_____

DEMOGRAPHIC SURVEY

This survey is to find out demographic information about participants in the cross sectional survey on the prevalence of HIV in the medical wards of the University Teaching Hospital.

1. Age in years: _____
2. Sex:
   Male _____ Female ____
3. Presenting symptoms:
   _____

   _____

   _____
4. Diagnosis:
   _____
5. Too sick to be interviewed _____

   Refused demographic survey ____

   Refused counseling _____

   Refused testing _____

   Agreed to interview, counseling and testing ____
6. Patient's Education level: Primary Number of years

   0 1 2 3 4 5 6 7

   Secondary Number of years

   1 2 3 4 5

College/University Number of years

1 2 3 4 ≥5

7. Fluency in English: Excellent ___
   Good ___
   Fair ___
   Poor ___
   None ___

8. Native Language: English ____
   Nyanja ____
   Bemba ____
   Tonga ____
   Lozi ____
   Other _____
   Specify

APPENDIX 3

CROSS SECTIONAL SURVEY LABORATORY REQUEST FORM

For lab use only

Patient Initials: _____ ID No. _____ Date Specimen Received:__/__/___

Age: _____ Sex: _____ Time Received: __/__/___

Ward: _____ Bed: _____ Lab. Ref. No: _____

Nature of Specimen: _____

_____

RVT: _____ RVT Result: _____

_____

Date collection: _____ Time: _____

Name of Requesting Doctor: _____

_____

Technologist: _____

APPENDIX 4
Table of Data Analysis for Specific Aim 1

			# patients counsel-ed but not tested	# patients not counseled but survey administ-ered	# patients approach-ed but refuse survey	# patients HIV +	# patients *HIV -*	# patient too ill t be approa -ed
ard		E01						
		E02						
		E11						
		E12						
		E21						
		E22						
		C12						
x		Male						
		Female						
e Group ars)		18-19						
		20-24						
		25-29						
		30-34						
		35-39						
		40-44						
		45-49						
		50-54						
		55-59						
		≥ 60						
agnosis	Tuberculosis							
	Pneumonia							
	Diarrhea							
	Malaria							
	Meningitis							
	Diabetes							
	Hypertension							
	Cardiac failure							
	CVA[1]							
	Malignancies[2]							
	Hepatitis							
	Renal failure							
	Other							

[1] Cerebrovascular accident [2] Malignancies such as Kaposi's Sarcoma and others

APPENDIX 5
Table of Data Analysis for Specific Aim 2

			# patients referred to VCT center	# patients who should have been referred but left before contacted	# patients attending VCT center
ard		E01			
		E02			
		E11			
		E12			
		E21			
		E22			
		C12			
x		Male			
		Female			
ge Group ears)		18-19			
		20-24			
		25-29			
		30-34			
		35-39			
		40-44			
		45-49			
		50-54			
		55-59			
		≥ 60			
agnosis	Tuberculosis				
	Pneumonia				
	Diarrhea				
	Malaria				
	Meningitis				
	Diabetes				
	Hypertension				
	Cardiac Failure				
	CVA[1]				
	Malignancies[2]				
	Hepatitis				
	Renal Failure				
	Other				

[1] Cardiovascular accident [2]Malignancies such as Kaposi's Sarcoma and others